a first light source configured to emit a first light flux having a first wavelength for recording and/or reproducing information for a second optical disk which is a high density optical disk used with a blue laser beam;

a second light source configured to emit a second light flux having a second wavelength longer than the first wavelength, for recording and/or reproducing information for a first optical disk;

a third light source configured to emit a third light flux having a third wavelength longer than the second wavelength, for recording and/or reproducing a third optical disk; and

an objective lens having an aspherical refractive surface and a ring-shaped diffractive surface designed with a phase difference function such that spherical aberrations of the first, second and third light fluxes due to difference in thickness of the transparent substrate among the first, second and third optical disks are corrected.

138. The optical pickup apparatus of claim 137, wherein when NA2 is an image side numerical aperture of the objective lens necessary for recording and/or reproducing information for the first optical disk, NA1 is an image side numerical aperture of the objective lens necessary for recording and/or reproducing information for the second optical disk, and NA3 is an image side numerical aperture of the objective lens necessary for recording and/or reproducing information for the third optical disk, NA1 and NA2 are larger than NA3.

139. The optical pickup apparatus of claim 138, wherein NA1 is equal to NA2.

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140. The optical pickup apparatus of claim 138, wherein when recording and/or reproducing information is conducted for the third optical disk, a spherical aberration of a light flux having passed through a region of the objective lens having a numerical aperture larger than NA3 is flare on the third optical disk.

141. The optical pickup apparatus of claim 137, wherein the ring-shaped diffractive surface is designed by a phase difference function in which a coefficient of the second power term is not zero and a coefficient of a term other than the second power term is not zero.

142. The optical pickup apparatus of claim 137, wherein the ring-shaped diffractive surface is designed by a phase difference function in which a term having a power larger than fourth power in power series has a coefficient other than zero.

143. The optical pickup apparatus of claim 137, wherein the thickness of the transparent substrate of the first optical disk is equal to that of the second optical disk.

144. The optical pickup apparatus of claim 137, wherein the objective lens corrects spherical aberrations due to difference in wavelength among the first, second and third light fluxes.

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